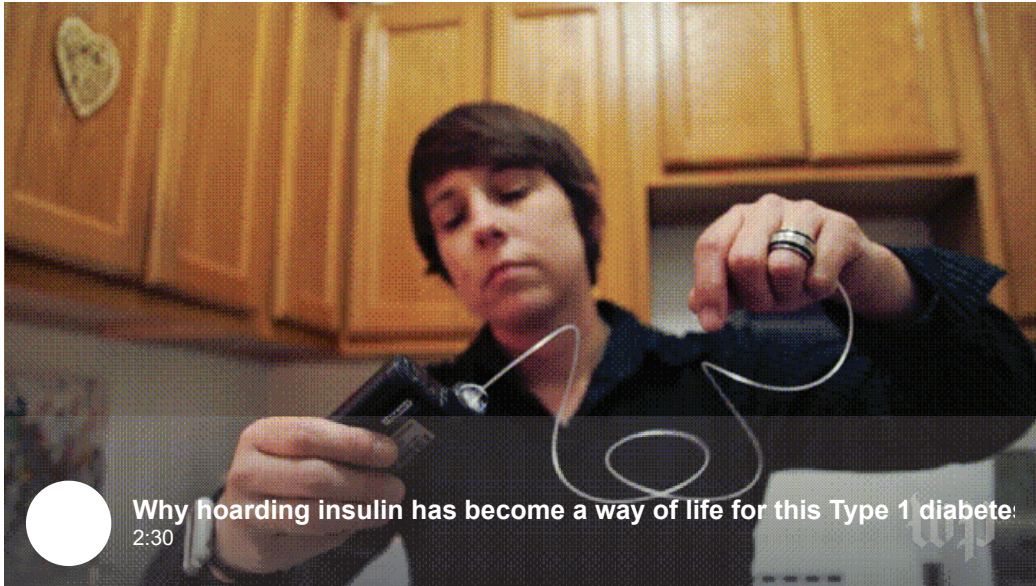


Exhibit 11

Economic Policy

Why treating diabetes keeps getting more expensive

October 31, 2016



Laura Marston is one of the 1.25 million Americans who suffer from Type 1 diabetes, an autoimmune disorder in which a person's pancreas can't make insulin. She hoards vials of the life-saving medicine in her refrigerator to protect herself from the drug's rising prices. (Video: Jorge Ribas/The Washington Post)



By Carolyn Y. Johnson

At first, the researchers who discovered insulin agonized about whether to patent the drug at all. It was 1921, and the team of biochemists and physicians based in Toronto was troubled by the idea of profiting from a medicine that had such widespread human value, one that could transform diabetes from a death sentence into a manageable disease.

Ultimately, they decided to file for a patent — and promptly sold it to the University of Toronto for \$3, or \$1 for each person listed. It was the best way, they believed, to ensure that no company would have a monopoly and patients would have affordable access to a safe, effective drug.

“Above all, these were discoverers who were trying to do a great humanitarian thing,” said historian Michael Bliss, “and they hoped their discovery was a kind of gift to humanity.”

ADVERTISING



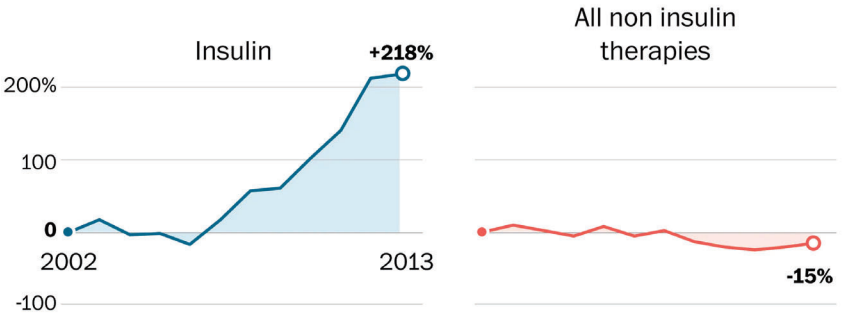
But the drug also has become a gift to the pharmaceutical industry. A version of insulin that carried a list price of \$17 a vial in 1997 is priced at \$138 today. Another that launched two decades ago with a sticker price of \$21 a vial has been increased to \$255.

This 90-year-old fight over insulin royalties reveals just how much has changed in medicine

Seventy-five years after the original insulin patent expired — a point at which drug prices usually decline — three companies have made incremental improvements to insulin that generate new patents and profits, creating a family of modern insulins worth billions of dollars.

Spending on insulin has increased faster than other diabetes drugs

Spending on insulin per patient has skyrocketed, driven by price hikes and increased use. In 2013, insulin spending was more than all other diabetes medications combined.



Note: Does not include rebates or discounts
Source: Journal of the American Medical Association THE WASHINGTON POST

“I don’t think it takes a cynic such as myself to see most of these drugs are being developed to preserve patent protection,” said David Nathan, a Harvard Medical School professor. “The truth is they are marginally different, and the clinical benefits of them over the older drugs have been zero.”

The nation faces a diabetes epidemic: About 6 million American adults depend on the drug. As is true with many medicines, most patients don't pay the full list price. The rising cost of insulin is often masked by health insurance.

But people with gaps in insurance, skimpy health coverage, or who break or lose a vial have learned the hard way how much the price has risen.

Big pharma is gearing up to defend drug prices after the presidential election

Among them is Laura Marston, 34, of the District, who has been on insulin for more than half of her life. When she was diagnosed with Type 1 diabetes as a teenager, meaning her body can't make insulin, she took Humulin, a drug invented the year she was born. With insurance, her insulin cost \$10 for a month's supply.

Shortly after, Marston's doctor switched her to a brand-new insulin called Humalog, which took effect faster. The drug was just as affordable with insurance.

Then, in 2012, Marston abruptly lost her job and health insurance. She found herself suddenly on the hook for the full price of Humalog, which was listed at \$140 a vial — and she needed three vials each month. She managed to obtain a very pricey insurance plan, but the insulin still cost her about \$200 a month.

An older insulin could have been cheaper, but she didn't know it was an option. She had years of experience and comfort managing her disease on her current regimen. But she's been closely tracking the price of new and old insulins ever since.

"Nor will I, ever again, go on a new insulin. I've learned my lesson,"

Marston said.

Drug companies commonly say that their rising prices reflect, in part, the costs of future innovation — the research and development to create new and better drugs. That makes Marston feel trapped: Companies say they charge high prices for old drugs so they can launch newer and better ones — and charge more for them, too.

“If the justifications pharma is giving are true, then it never ends for us,” Marston said.



Laura Marston holds up a vial of Humalog, the insulin she takes for Type 1 diabetes. When she was diagnosed at age 14, the list price for the drug was \$21 per vial. Now it's more than \$250 a vial.
 (Jorge Ribas, The Washington Post)

Evolution of insulin

Irl Hirsch remembers when insulin cost 75 cents a vial. The 58-year-old doctor has used insulin for more than half a century and knows firsthand that pricing and access weren't an issue for much of that time.

Drugstore ads from the 1960s published in The Washington Post advertised insulin for as little as 84 cents a vial — less than a bottle of Breck shampoo, three bags of Halloween candy bars or a can of Suave

hair spray. The most expensive version listed in the ad was less than \$2 a vial.

For years, the price was affordable as far as he knows, Hirsch says — as it should be.

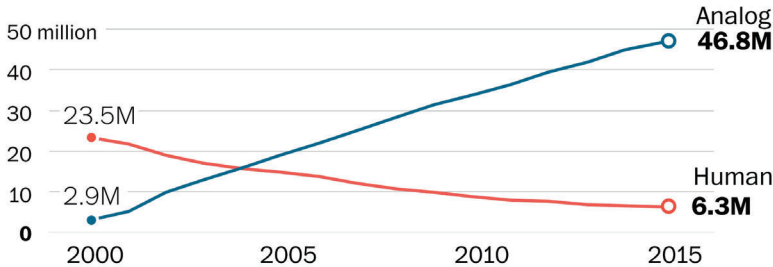
“This is not a concierge medication,” he said.

This drug is defying a rare form of leukemia — and it keeps getting pricier

As a diabetes specialist at the University of Washington School of Medicine in Seattle and as a patient, Hirsch has witnessed insulin’s evolution: a scientific quest driven by an effort to make insulin molecules that more closely mimic the way the hormone works in the body. The first insulin he took was crude by today’s standards, extracted from the macerated pancreas of farm animals. Some patients had allergic reactions, such as skin rashes.

A shift to new and more expensive insulins

Since 2000, prescriptions for newer, pricier analog insulins have increased, while those for older human insulins have sharply decreased.



Source: IMS Health

THE WASHINGTON POST

“These were an incredibly efficient way of making insulin. We’d never run out; it would keep the prices under control,” Nathan said. “How that has changed.”

The Danish company Novo Nordisk began making its own bioengineered human insulin in 1991. Rather than lower the price, however, competition had an unusual effect: The list prices began to rise.

This is the best way to end soaring drug prices

As concerns about drug prices have simmered among the public and politicians, the long history of insulin shows the ripple effect of the industry-wide practice of raising list prices of existing drugs: All boats rise with the tide. Price increases on old drugs recalibrate how much it costs to treat the disease, paving the way for new drugs to be launched at ever higher prices.

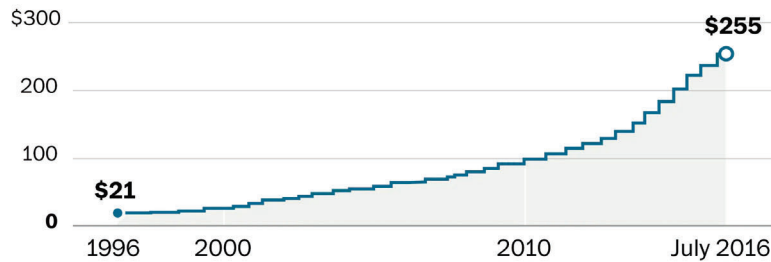
According to a Washington Post analysis of Truven Health Analytics data, over the past two decades, Eli Lilly and Novo Nordisk raised prices on their human insulins 450 percent above inflation, closely in sync.

That's not what Eli Lilly anticipated, at least not publicly. When Humulin was introduced in 1982, company spokesman Ronald Culp told the New York Times, "The long-term desire is that the cost will come down, but at this point we cannot speculate on just how far."

Since then, other insulins have come on the market in faster-acting or longer-lasting formulations. Experts have been divided about how beneficial those advancements are and whether they are necessary for many patients. Meanwhile, the new drugs' prices have risen rapidly. Humalog, for instance, has soared from \$21 a vial to more than \$250 in the past 20 years.

The list price of Humalog insulin keeps going up

Since 1996, there have been more than two dozen price increases on a vial of Humalog insulin. Adjusted for inflation, the current price is 700% higher than it was 20 years ago.



Note: List price is in unadjusted dollars and does not reflect rebates or discounts

Source: Truven Health Analytics

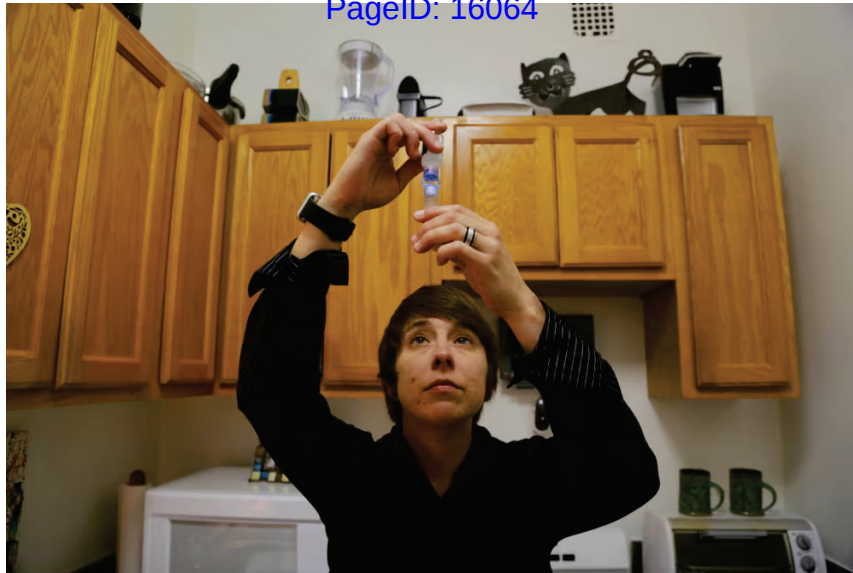
THE WASHINGTON POST

“Yes, in a dramatic fashion, the newer insulins may not have been as large . . . as those previous leaps,” said Todd Hobbs, chief medical officer of Novo Nordisk in North America. “I think it’s tough to compare the price increases over the decades, but if you look at the advancements from where we were 25 years ago, it’s been considerable.”

Critics don’t argue that the new drugs are ineffective or that there aren’t subsets of patients who do better or prefer the newer drugs. Instead, the debate centers on whether the benefit is worth the increased cost.

Pharmacy benefit managers — the middlemen hired by insurers to negotiate prices with drugmakers — have been among the loudest voices in that debate.

“In some ways you might want to put the [word] ‘improvements’ or ‘improved’ in quotes,” said Glen Stettin, a senior vice president at Express Scripts Holding, the largest pharmacy benefit manager. “For some people, some elements of convenience or how the insulin works for them may be different. But for most people, most of the time the improvements are not really improvements at all.”



In her kitchen in Washington, D.C., Laura Marston, 34, checks her insulin pump after putting in a new vial of the drug. (Jorge Ribas, The Washington Post)

List-price inflation

Drug companies have long argued that list prices are fiction. Health insurers hire pharmacy benefit managers to bargain for secret rebates and discounts off the list price. Insurance, and in some cases financial-assistance programs, then help patients with the rest of the tab.

All three drug companies that dominate the insulin market said that list-price inflation is deceiving for these reasons. But increasingly, as drug prices have grown and insurance companies have changed how benefits are structured, they do matter. There's growing evidence that patients are shouldering more of the cost of their drugs.

Still, drug companies do not always realize the profit from the rising list price of insulin, said Enrique Conterno, a senior vice president at Eli Lilly. As the price increases, he said, drugmakers often give deeper rebates to pharmacy benefit managers. Those that don't might receive less-favorable coverage from insurers, he said.

Obamacare and drug prices push health spending to \$3 trillion

That's led to a situation in which the list price for Humalog has increased about 150 percent since 2009 — but the net price of the drug after rebates has been flat, Conterno said.

That's not to say that drug companies aren't benefiting from list-price increases over the long term, or even in a given year. Last year, Lilly reported that the revenue from Humalog grew 9 percent in the United States, driven mostly by price increases. But last week, Lilly reported that Humalog's U.S. revenues in the past quarter declined compared with a year ago, even though the company sold more of the drug, because of deeper rebates and discounts.

Ken Inchausti, a spokesman for Novo Nordisk, said in an email that price increases of its insulins "were offset by those rebates and other fees charged by wholesalers and others in the supply chain."

Sanofi said that the net price for its best-selling drug, the insulin Lantus, has fallen over the past five years. Express Scripts said that the net price for that drug declined nearly 14 percent in 2015.

There have been few efforts to create a cheaper insulin. Walmart, for instance, sells Novo Nordisk's human insulin under the name ReliOn for \$25 a vial. Eli Lilly is expected to release the first copycat insulin analog, a chemically altered form of insulin, at the end of this year.

But insulin is a large, complex molecule that can't be easily made into a pill like a traditional generic. It requires an expensive process using living cells and a bioreactor.



In her kitchen in Washington, D.C., Laura Marston, 34, checks her insulin pump after putting in a new vial of the drug. (Jorge Ribas, The Washington Post)

Jeremy Greene, a physician and historian of medicine at Johns Hopkins University School of Medicine, said that when he began practicing medicine in Baltimore, he was surprised to find patients coming in with

poorly controlled blood sugar. They weren't taking their insulin, they said, because it was too expensive.

"It shocked me . . . that it could be true that this drug that had been around for 95 years was not available generically," Greene said.

That leaves diabetes patients subject to the decisions that drugmakers and insurers make behind closed doors.

Patricia Bailey, 66, of Springville, Tenn., said that her insurer once switched her to a another brand of insulin without explanation or warning. Although the new drug works the same, she said, it's disquieting to feel at the whim of a process she can't control, and in the past she's had allergic reactions to certain insulins. Her costs have only gone up, and now she pays about \$400 out of pocket for a three-month supply.

Bailey is frugal with her insulin now. When she gets a "low reservoir" warning from her pump, she'll leave it until the tubing is completely empty of insulin. If she runs out at night, she'll leave it for a few hours, even though it means her blood sugar goes up.

She doesn't consider it rationing, just stretching her insulin as far as it can possibly go — and she doesn't tell her doctor.

That leaves a mixed legacy for one of the most important advances in modern medicine: Patients who were once called "living skeletons" on starvation diets can now live normal lives, thanks to drugs that are being constantly tweaked. But they feel like they're being held captive to an ever-rising price tag on their lives.

"It's the idea that I have no alternative, I have no choice, I have to pay whatever is asked of me," Bailey said. "And it's just continually, continually going up."

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